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Maine's 100 Most Expensive Worker's Compensation Claims 1999-2003

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STATE OF MAINE
WORKERS' COMPENSATION BOARD



**Most Expensive
100 Workers' Compensation Claims
1999-2003**

A Research Paper

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**Most Expensive
100 Workers' Compensation Claims
1999-2003**

Kathleen A. Schulz
Principal Researcher

This research paper was completed with the help of the entire Monitoring Staff. Steve Minkowsky, reviewer and champion of this research; Jeff Levesque, who framed the initial inquiry years ago and provided a sounding board; Brad Howard, editor and the person who pointed me to obvious things I was leaving out; and Anne Poulin whose editor's eye is masterful.

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I. Introduction

In 2002, a study of the most costly workers' compensation claims in Maine was conducted for injuries occurring in the period 1994-1998. The study was conducted to try to identify cost drivers within the system and generate questions for further research. The information was presented in several different venues and was received with interest from insurers, employers and safety coordinators as well as the workers compensation and the occupational research community. This new research will study the cost of claims of injuries that occurred in the subsequent five years 1999-2003. This study endeavors to ascertain if the cost dynamics of the workers' compensation system have changed between the initial and subsequent studies. This study identifies new areas of focus and proposes additional research questions.

II. Methodology

In Maine, all workers' compensation injuries resulting in a day or more of lost time must be reported to the Maine Workers' Compensation Board (MWCB). There is a seven day waiting period before indemnity benefits become due. Consequently, those injuries where an employee returns to work within seven days do not require indemnity benefits. Overall costs of the workers' compensation system are collected by MWCB and is maintained in the MWCB database for lost time injuries via a form known as the Statement of Compensation Paid (WCB-11). This form is a requirement for any injury where indemnity benefits have been paid. There are workers' compensation injuries where an employee is not paid indemnity benefits and yet there are medical or other costs to the employer/insurer; however, the Board does not require any costs be reported to them on claims where indemnity payments have not been made. These claims represent approximately fifty-six percent of all lost time workers' compensation claims. No indemnity payments have been made because the injured worker returns to work within the waiting period which is seven days in Maine.

In April of 2007, a database query was generated to identify total costs reported to MWCB for workers compensation claims for injuries occurring from 1999-2003. The most expensive one hundred claims in this query were identified and the claim files were reviewed and checked for accuracy. This time period corresponds to the same time when claims were identified in the original study, so that the time periods would correspond. Compared to the 2002 study, more medical information was captured and reviewed. Additionally, this study captured the date of the lump sum settlement, if there was one, and the date of hire for the injured worker, two elements that were not identified in the first study.

Two terms are used repeatedly for comparison in this study: Length of Service and Age. In both cases, these terms reference the date of the employee's injury. Age is reported as the age of the person on the day of the injury and length of service is reported as the length of time between the individual's date of hire and the date of the injury.

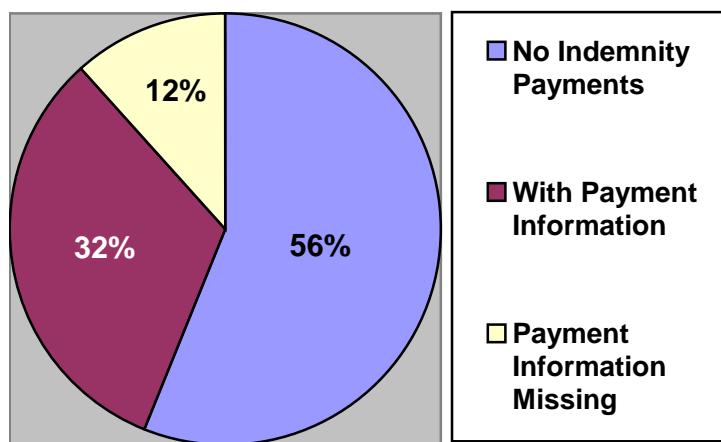
The first step of this research compared the cost data for the most expensive one hundred claims to all other reported lost time claims in the same time period. The purpose of this comparison was to identify any differences between the populations in both frequency and/or cost.

The second step of the research was to compare and contrast the hundred most costly claims in this study with the results of the hundred most costly claims in the 2002 study. Some data elements in the current study were not gathered at the time of the previous study. Since many of the files of those original one hundred cases have been destroyed, it was impossible to update those claims with comparable information and the areas have been identified on charts as n/a (not available.)

III. Findings 1999-2003 100 Most Costly Claims Compared to all other Compensable Lost Time Claims

A. Demographics

For this five year period, the MWCB database identified 85,432 lost time injuries. The Board has records of indemnity benefits on 37,583 of these claims (44.0%). Cost data was available on 27,514 claims. MWCB requires a Statement of Compensation Paid (WCB-11) be filed at various points in the life of that indemnity claim. It is assumed that the difference between the number of lost time injuries and the number of lost time injuries with indemnity benefits (47,849 claims) are injuries where the employee returned to work within the waiting period. Cost data was not available on claims where a WCB-11 is required but not filed.



The following table compares gender, average age and average length of service of the two populations. The population of the one hundred most costly claims was heavily favored to males. Unlike all other injured workers, the one hundred most costly male population is nearly twenty percent greater than the total population. This disparity is clearly an area for further investigation and inquiry. There is little variation in the average age of the two populations.

1999-2003		100 Most Costly Claims			All Other Lost Time Claims		
		Male	Female	Total	Male	Female	Total
Gender	80	20		100	16,876	10,538	27,414
Percent of Total Claims Population	(80%)	(20%)			(61.6%)	(38.4%)	
Average Age	41.1	41.4		41.2	40.4	41.9	41.0
Median Age	40.0	42.0		40.0	40.0	42.0	41.0
Average Length of Service	6.6 years	4.1 years		6.1 years	6.8 years	6.0 years	6.5 years
Median Length of Service	2.9 years	2.9 years		2.9 years	2.4 years	2.5 years	2.5 years

An analysis of the length of service of an injured employee proved to have more variability. Although the average length of service for both the hundred most costly population and all other lost time claims did not differ much within the male population or within the total population, there is a difference of nearly two years in the length of service of the females in the most costly one hundred population from the all other lost time claims of females. This is another area that invites further investigation.

Questions for further research:

Why do men represent a far higher percentage of the most costly claims than within the other injured workers?

In the hundred most costly claims why do women's average length of service differ so greatly from the average length of service of all other injured women?

Why is there a difference between male and female length of service?

B. Costs by Gender

1999-2003		100 Most Costly Claims			All Other Lost Time Claims		
		Male	Female	All	Male	Female	All
Avg. Cost of Claim	\$550,255	\$530,350		\$546,274	\$22,151	\$19,895	\$21,286
Total Claim Costs by Group	\$44,001,315	\$10,607,007		\$54,608,322	\$373,901,800	\$209,654,602	\$583,556,403
Percent of Costs	80.6%	19.4%			64.1%	35.9%	
Percent of Total Costs				8.6%			91.4%

In both of the populations, the average cost of a claim for males is greater than for females. The difference between males and females in the hundred most costly is roughly twenty thousand dollars which represents only a 3.6% difference. Although the dollar difference is far smaller in the all other population (\$3,710), it represents a 15.2% difference. Indemnity benefits are based upon an employee's average weekly wage and the difference in the cost data may be driven by this factor.

Although the hundred most costly claims represent not even half a percentage point of all claims with payments in the five year period, they represent nearly nine percent of the total costs of workers' compensation in Maine for injuries in that five year period. For that reason alone, there should be interest in this subset of claims when examining cost drivers and cost control.

Questions for further research:

Why do female workers' compensation claims cost less than male claims?

What impact is average weekly wage having on the difference between male and female cost data?

C. Injury Frequency by Age

1999-2003	100 Most Costly Claims		All Other Lost Time Claims	
Age Category	Number	Percentage	Number	Percentage
Under 20	2	2.0%	717	2.6%
20-24	4	4.0%	2130	7.8%
25-34	22	22.0%	5739	20.9%
35-44	37	37.0%	8358	30.5%
45-54	23	23.0%	6642	24.2%
55-64	11	11.0%	3129	11.4%
65 and Over	1	1.0%	547	2.0%

The age distribution between the two populations is similar. As the workforce in Maine is aging, there is an expectation that Maine will start to see more injuries occurring in older workers. The sixty-five and over age category is the smallest percentage of both claims populations and the under twenty age and age 20-24 categories comprise the next smallest percentage. The remaining four categories each span a ten year period. Clearly, most of the injuries in both populations are those between the ages of 35 and 44. The age category on either side of this age group decreases and there is a marked drop off in the age 55-64 category.

In national data presented in October, 2007 by NCCI¹, the frequency of injury per 1,000 full time workers is inversely related to the age of the worker for the time period from 2003 to 2005. Those 20-24 have more than sixteen injuries per thousand workers. Those 25-44 have

¹ National Council on Compensation Insurance, Inc., October 23, 2007 p. 45.

fourteen injuries per thousand workers and those 45-64 have thirteen injuries per thousand workers. Without information relevant to the entire workforce in Maine, it is difficult to assess this information in isolation.

Questions for further research:

- Do injured workers reflect the age of the entire workforce in Maine? If there are differences, where are they?
- How will the aging workforce impact costs to the workers' compensation system?
- Why are nearly a third of the injured workers' between the ages of 35 and 44? Is this a comparable percentage of the total workforce?

D. Total Cost by Age

1999-2003	100 Most Costly Claims			All Other Lost Time Claims	
Age Category	Total Claim Costs	Rank Order of Total Costs	n=	Total Claim Costs	Rank Order of Total Costs
Under 20	\$928,024	6	2	\$4,805,912	7
20-24	\$1,991,729	5	4	\$21,666,548	5
25-34	\$11,092,773	3	22	\$104,153,280	3
35-44	\$19,828,215	1	37	\$204,222,437	1
45-54	\$13,886,182	2	23	\$160,710,912	2
55-64	\$6,457,960	4	11	\$75,281,106	4
65 and Over	\$423,440	7	1	\$9,756,185	6

The cost of claims is another way to look at workers' compensation information with regard to age. It is interesting to observe where the frequency of injuries in the previous chart differs from the cost of those same injuries. The only change occurs in the all other lost time claims population and is in the last two most frequent categories (Under age 20 and 65 and over.) There were almost two hundred fewer compensable lost time injuries in the age 65 and Over category than in the Under 20 age category, yet the total cost of 65 and Over claims was more than double the cost of Under 20 compensable lost time injuries.

In the hundred most costly claims, the rank order of the total cost of the claims for each age category is exactly the same as the frequency for each age category.

In catastrophic claims where the employee is not expected to be able to return to work, the cost of the lump sum settlement of the claims is estimated based on the life expectancy of the claimant. It would be expected that within the hundred most costly claims (catastrophic claims), the age of the employee would be inversely proportional to the cost of his claim. This works with the oldest claimants, but there is no discernable pattern of decrease with the other age categories.

1999-2003	100 Most Costly Claims		All Other Lost Time Claims	
Age Category	Average Cost of a Claim	Rank Order of Average Cost	Average Cost of a Claim	Rank Order of Average Cost
Under 20	\$464,012	6	\$6,703	7
20-24	\$497,932	4	\$10,172	6
25-34	\$482,294	5	\$18,148	4
35-44	\$535,898	3	\$24,434	1
45-54	\$603,747	1	\$24,193	2
55-64	\$587,087	2	\$24,059	3
65 and Over	\$423,440	7	\$17,836	5

The above circumstances led the researcher to develop an average cost by age chart. The above chart observes the average cost of a claim in both populations by age category. The assumption that the cost of a claim varies inversely to the age of the claimant does not prove to be true when looking at the data in this manner either.

In fact, quite the opposite looks to be happening in the all other claims population. The average cost of a claim increases with the age of the employee. Although there is a slight downward cost in the 45-54 age group and then another small decrease in the next age group (55-64), the average cost of a claim within the three age categories shifts by less than 2%. The real dip occurs when the employee is age 65 or older. These claims are only 2% of all the claims, but they cost on average considerably less than those injuries that occur in the three prior age categories.

In the 100 Most Costly Claims, the average cost of a claim increases with the age of the claimant from the earliest age category through to those age 45-54. Only after that point does the average cost of a claim begin to decrease. Total claim costs are affected by many factors. As opined above, the lump sum settlement affects the more catastrophic claims when they close. Additionally, the average weekly wage of the worker impacts the total costs as well as the medical costs. For that reason, the researchers looked at the indemnity costs of a claim as they were impacted by age as well as medical costs of a claim.

1999-2003	100 Most Costly Claims		All Other Lost Time Claims	
Age Category	Average Indemnity Cost of a Claim	Rank Order of Average Indemnity Cost	Average Indemnity Cost of a Claim	Rank Order of Average Indemnity Cost
Under 20	\$16,101	7	\$1,579	7
20-24	\$64,344	5	\$3,038	6
25-34	\$104,275	2	\$5,805	4
35-44	\$93,035	4	\$8,351	3
45-54	\$133,827	1	\$8,550	1
55-64	\$96,379	3	\$8,443	2
65 and Over	\$62,668	6	\$5,039	5

The chart on the previous page shows a fairly steady increase in the indemnity costs of a claim in the all other lost time claims age categories. The average weekly wage of the employee greatly impacts the indemnity costs and as an employee ages usually their average weekly wage increases as well. The only decrease is a negligible decrease between ages 45-54 and ages 55-64. A large decrease occurs for those age 65 and over. The same increase is not seen within the 100 most costly claims. Keeping in mind that these are truly catastrophic injuries, the amount of time that the claim stays open will determine how great the indemnity costs are. Closing a claim with a lump sum settlement anticipates future indemnity costs that are not reflected above.

The number of open catastrophic claims in this study may be related to the increase in medical costs. The researchers sought to look at the average medical costs of a claim and whether the age of the claimant appears to be a factor.

1999-2003	100 Most Costly Claims		All Other Lost Time Claims	
Age Category	Average Medical Costs of a Claim	Rank Order of Average Medical Costs	Average Medical Costs of a Claim	Rank Order of Average Medical Costs
Under 20	\$436,226	1	\$4,642	7
20-24	\$229,874	5	\$5,600	6
25-34	\$191,453	6	\$8,043	5
35-44	\$270,181	4	\$10,461	2
45-54	\$290,291	3	\$10,110	3
55-64	\$374,541	2	\$10,471	1
65 and Over	\$171,601	7	\$9,045	4

Within the category of all other lost time claims it appears that the average medical cost of a claim increases with the age of the employee until they reach retirement age. (Employees age 45-54 represent a small decrease from the employees age 35-44.) However, that pattern of growth does not appear to be the case for the 100 most costly claims. In fact, the under twenty age category has the highest average medical cost for the entire population. It is important to note that there are only two injured workers in this age category. If this age category was ignored for its small number, the highest average medical cost in this population would also be those age 55-64.

Questions for further research:

Why does the cost by age differ from the frequency by age?

What information will help to explain the differences noted in the above charts?

Are increasing medical costs having an influence on how long a claim remains open?

What impact do social security and disability offsets have on indemnity payments?

E. Frequency by Length of Service

1999-2003		100 Most Costly Claims		All Other Lost Time Claims	
Length of Service		Number	Percentage	Number	Percentage
Less than 6 months		20	20.0%	6074	22.2%
6 months but less than 1 year		11	11.0%	2776	10.1%
1 year but less than 2 years		12	12.0%	3439	12.5%
2 years but less than 5 years		20	20.0%	4832	17.6%
5 years but less than 10 years		13	13.0%	3458	12.6%
10 years or more		22	22.0%	6117	22.3%

The frequency of claims within both populations is virtually the same with only modest changes. What is striking is that **nearly one third of all compensable claims occur when the employee has less than one year of service at the time of the injury. And more than four out of every ten lost time injuries in Maine that require indemnity payments happen to employees who have worked at their job for less than two years.**

In a presentation to the Workers Compensation State Advisory Forum in October of 2007 by the National Council on Compensation Insurance, Inc. (NCCI), they pointed out that nationally 24.4% of all employees have less than one year of experience with their current employer, and yet they represent 35.0% of all injuries. Those with one to five years of experience represent 36.8% of the employees and 34.1% of the injuries. They concluded that experience matters.²

Questions for further research:

- Why does one in every three lost time injuries occur within the first year of service?
- What implications does this have for safety officers and human relations departments?

F. Cost by Length of Service

1999-2003		100 Most Costly Claims			All Other Lost Time Claims		
Length of Service	Cost	Percentage	Rank	Cost	Percentage	Rank	
Less than 6 months	\$ 11,615,482	21.3%	2	\$116,386,509	19.9%		2
6 months but less than 1 year	\$ 4,574,725	8.4%	6	\$ 58,001,332	9.9%		6
1 year but less than 2 years	\$ 5,834,196	10.7%	5	\$ 71,765,326	12.3%		5
2 years but less than 5 years	\$ 9,693,363	17.8%	3	\$103,600,166	17.8%		3
5 years but less than 10 years	\$ 9,466,368	17.3%	4	\$ 83,536,014	14.3%		4
10 years or more	\$ 12,277,186	22.5%	1	\$136,424,546	23.4%		1

² 2007 State Advisory Forums, October 23, 2007, Workers' Compensation State Advisory Forum, p.40.

The cost information is similar to the frequency information in that nearly thirty percent of the costs for compensable claims are with individuals who have less than one year's length of service with the company. Again, an analysis of this information indicates that more than four out of every ten dollars spent in the workers' compensation system is spent on employees who have worked with a company for less than two years. Although the average length of service for all injured workers is six and one half years, it would appear that some safety training and other attention paid to the newer worker may result in a reduction in total costs. While the above chart gives information as to the total costs to the system for employees with varying lengths of service, it is important to look at the average cost of a claim in comparison to the injured worker's length of service as well.

G. Average Cost by Length of Service

The longer an employee works for a company usually indicates an increase in the employee's average weekly wage. Since much of the cost of a claim is linked to wages, an expectation would be that as the length of service increases, so does the cost of that employee's workers' compensation claim. The chart below does not indicate a gradual increase in either the more catastrophic claim costs, or the all other claims costs as the length of service increases.

1999-2003	100 Most Costly Claims		All Other Lost Time Claims	
Length of Service	Average Cost of a Claim	Rank	Average Cost of a Claim	Rank
Less than 6 months	\$580,774	2	\$19,161	6
6 months but less than 1 year	\$415,884	6	\$20,894	4
1 year but less than 2 years	\$486,183	4	\$20,868	5
2 years but less than 5 years	\$484,668	5	\$21,440	3
5 years but less than 10 years	\$728,182	1	\$24,157	1
10 years or more	\$558,054	3	\$22,303	2
Average of All	\$540,676		\$21,286	

Questions for further research:

Why do four out of every ten dollars spent on the workers' compensation system occur with employees who have been on the job for less than two years?

Do these figures reflect the transient nature of the workforce in Maine?

Why do claims cost increase for employees who have worked 5 years, but less than 10 years for the company?

H. Lump Sum Settlements

There were 2,088 lump sum settlements for injuries that occurred from 1999 to 2003. The total value of these lump sum settlements is in excess of \$105 million. The 100 most costly claims represent more than \$15 million of that sum or 14.4% of the total lump sum settlement dollars.

It is important to look at the settlements themselves in various severity categories. More than ten percent of the settlements were less than five thousand dollars. Nearly half of all settlements were within ten to fifty thousand dollars. Only 259 had settlements in excess of one hundred thousand dollars and 62 are in the 100 most costly claims category.

Lump Sum Settlements for Injuries Occurring 1999-2003

0-\$5,000	234	11.2%
\$5,001-\$10,000	204	9.8%
\$10,001-\$50,000	980	46.9%
\$50,001-\$100,000	411	19.7%
\$100,001 +	259	12.4%

Total lump sum settlements: **2,088**

It is also helpful to look at the variation in the total costs of these same claims. The overall costs of claims settled with a lump sum ranged from a low of under two thousand dollars (\$1,524) to a high of over three quarters of a million dollars (\$759,757). A review of the relative costs of a claim closed by lump sum vs. claims that remain open by category indicates a similar cost distribution (minus the lump sum itself). In 2006 the Board undertook a study of lump sum settlements in Maine. This study sent surveys to a sample of lump sum settlement recipients and asked them questions related to their health, the adequacy of the settlement and their overall satisfaction with the workers' compensation system. The survey respondents were individuals who received a lump sum settlement at some time from 2000 to 2004. It can be assumed that many of those respondents are represented in these numbers and the results are interesting to compare to the results of this study.

Questions for further research:

- Are lump sum settlements providing enough resources for future medical costs?
- Are lump sum settlements growing or shrinking? Why?

I. Injuries by County

1999-2003	A	A-C	B	B-C	C
County	Percent of 100 Most Costly Injured Employees	% Difference from All Maine Employees	Percent of All Other Lost Time Injured Employees	% Difference from All Maine Employees	Percent of All Maine Employees
Androscoggin	9.0%	0.7%	8.9%	0.6%	8.3%
Aroostook	6.0%	0.8%	5.8%	0.6%	5.2%
Cumberland	30.0%	8.0%	26.1%	4.1%	22.0%
Franklin	2.0%	0.1%	1.8%	-0.3%	2.1%
Hancock	4.0%	-0.3%	3.8%	-0.5%	4.3%
Kennebec	11.0%	2.0%	9.0%	No change	9.0%
Knox	3.0%	-0.1%	3.0%	-0.1%	3.1%
Lincoln	1.0%	-1.6%	1.8%	-0.8%	2.6%
Oxford	2.0%	-2.0%	3.3%	-0.7%	4.0%
Penobscot	6.0%	-5.3%	10.1%	-1.2%	11.3%
Piscataquis	1.0%	-0.2%	0.9%	-0.3%	1.2%
Sagadahoc	2.0%	-0.7%	3.1%	0.4%	2.7%
Somerset	2.0%	-1.7%	3.7%	No change	3.7%
Waldo	1.0%	-1.9%	2.0%	-0.9%	2.9%
Washington	4.0%	1.7%	2.3%	No change	2.3%
York	10.0%	-5.4%	11.0%	-3.6%	15.4%

A review of where lost time injuries have occurred when compared to overall labor statistics for the State of Maine by county was reviewed. The above table indicates the findings. Where large positive differences between the percent of all other lost time injured employees and the percent of all Maine employees exist, the risk to employees in that county may be great. Where large differences between the percentage of the 100 most costly injured employees and the percent of all Maine employees exist, the severity of injuries in the county may be greater. The only remarkable differences are in Cumberland and York counties. In all other counties, the frequency of claims within that county is within two percentage points of the total workers within the county. In Cumberland County, there are four percent more claims than would have been predicted from the number of workers in Cumberland County and in York County the exact opposite occurred. There were four percent fewer claims than would be predicted by the distribution of the workforce.

Comparison within the much smaller sample of the most costly claims is not vastly different from the expected distribution. The same variation in Cumberland and York counties is again seen in this much smaller sample.

IV. Results 100 Most Costly Populations 1994-1998 and 1999-2003

While the previous section dealt with many different ways of looking at the differences between the entire population of claims with injuries in 1999–2003 and its subpopulation of the hundred most costly claims for the same period, this next section looks only at the smaller subpopulation and compares it with the same subpopulation in the prior study. A reminder that the first study in 2002 looked at injury dates from 1994-1998 and this study reviews claims with injury dates from 1999-2003.

A. Demographics

100 Most Costly	1994-1998			1999-2003		
	Male	Female	Total	Male	Female	Total
Gender	78 (78%)	22 (22%)	100	80 (80%)	20 (20%)	100
Average Age	41.9	41.8	41.9	40.1	41.4	41.2
Length of Service	n/a	n/a	n/a	6.6 years	4.1 years	6.1 years

The gender split in the hundred most costly claims remained basically the same. Both populations had a large percentage of males. The age of the injured worker in the current study was slightly younger than the previous study. The age range in the earlier study was 24 years of age to 63 years of age, while the age range in the later study was 16 years of age to 81 years of age, a difference in age of twenty-six years, yet the average age of the injured worker remained approximately the same.

B. Costs by Gender

100 Most Costly	1994-1998			1999-2003		
	Male	Female	Total	Male	Female	Total
Avg. Cost of Claim	\$390,002	\$383,851	\$388,650	\$550,016	\$530,350	\$546,083

In both of the populations, the average cost of the claims for males is greater than the claims for females. The difference in the first period was a little more than six thousand dollars (\$6,151 or 1.6% of the average cost of a claim). In the second period the difference is more than triple that dollar amount or roughly twenty thousand dollars and more than double the percentage (\$19,666 or 3.6% of the average cost of a claim).

In the first period of study, the cost of a claim ranged from a low of \$284,000 to a high of \$1,044,000. The range in the second time period was from a low of \$344,000 to a high of \$2,940,000. It is important to note that the overall average cost of a claim within this population has increased by more than \$150,000 (or 40.5% more than the previous period). Based on the CPI-W numbers, inflation for this period is 12.6%. An increase of in excess of 40% cannot be explained by these inflation factors over the same period of time.

Questions for further research:

- Why is the disparity of the cost of a claim between genders increasing so rapidly over time?
- What is driving the overall increase in catastrophic claim costs?

C. Injury Frequency by Age

100 Most Costly	1994-1998		1999-2003		
	Age Category	Number	Percentage	Number	Percentage
Under 20		0	0.0%	2	2.0%
20-24		1	1.0%	4	4.0%
25-34		27	27.0%	22	22.0%
35-44		37	37.0%	37	37.0%
45-54		26	26.0%	23	23.0%
55-64		9	9.0%	11	11.0%
65+		0	0.0%	1	1.0%

There is remarkable similarity within the two populations as far as age distribution. More than three quarters of the most costly claims in both time frames occurred with employees from age 25-54 at the height of their working years. More than a third of them in each time period were age 35-44. In the second five year period, there were five more injuries in younger workers than in the previous five year period and there were three more injuries in the older age categories (age 55+).

D. Cost by Age

The cost of claims is another way to look at the information with regard to age. In the following chart, the percentage of total costs does not differ significantly (more than 2%) from the frequency percentage in any category other than age 45-54 in the second five year period. The cost for twenty-three percent of the injuries was more than twenty-five percent (25.4%) of the total costs for the hundred most costly claims in that time period.

100 Most Costly	1994-1998		1999-2003		
	Age Category	Total Cost	Percentage	Total Cost	Percentage
Under 20		\$0	0.0%	\$928,024	1.7%
20-24		\$342,664	0.9%	\$1,991,729	3.6%
25-34		\$10,756,338	28.2%	\$11,092,773	20.3%
35-44		\$13,867,072	36.4%	\$19,828,215	36.3%
45-54		\$9,272,680	24.3%	\$13,886,182	25.4%
55-64		\$3,905,501	10.2%	\$6,457,960	11.8%
65+		\$0	0.0%	\$423,440	0.8%

Another way of looking at this same data is to analyze the average cost of a claim by the age of the injured worker. Although this was done for the second time period in charts noted

above, it is interesting to see if any changes have appeared over time with respect to the average cost of a claim from one period to the next.

100 Most Costly	1994-1998		1999-2003	
Age Category	Average Cost	Rank Order	Average Cost	Rank Order
Under 20	\$0		\$464,012	6
20-24	\$342,664	5	\$497,932	4
25-34	\$398,383	2	\$482,294	5
35-44	\$374,786	3	\$535,898	3
45-54	\$356,642	4	\$603,747	1
55-64	\$433,945	1	\$587,087	2
65+	\$0		\$423,440	7

There has been a shift in the average cost of a claim. In the second five year period the older workers (45-64) had claims that were more costly than younger workers. Although the age 55-64 workers were the most expensive in the previous five years, the age 25-34 workers represented the next highest average cost.

Questions for further research:

- Why is there a shift in the average cost of a claim to older workers?
- Why are employees aged 45-54 the most expensive claims?

E. Open versus Closed Claims

In the first five year period seventy-six of the hundred most costly claims were closed via a lump sum settlement at the time of the study. Nine claims could not be located for inspection, so it is likely that those too were in the process of being closed. In the second period, only sixty-six of the claims had been closed (three of them by subrogation). That means that thirty-four of these most costly claims still remained open and ongoing at the time of the study in contrast to the fifteen open claims in the first time period. The researchers suspect that the spike in costs may be able to be explained by the length of time before a claim becomes closed or settled. This needs to be investigated in the next study to determine if claims are staying open longer.

The second period of time found that the average time from the date of injury to the date of the lump sum settlement was 1,677 days or four years and almost seven months. Because the date of the lump sum settlement was not collected at the time of the investigation, we do not know the exact length of time from the date of injury to the date of the lump sum settlement. The study takes place three years and four months after the close of the last year of study. It was estimated that eighty-five of the hundred most costly claims were closed or in the process of closing at that time.

Questions for further research:

- Why are catastrophic claims staying open longer now?
- Is this trend a general trend that can be seen across the entire population of lost time injuries?

F. Breakdown of Costs for 100 Most Costly Claims

100 Most Costly	1994-1998		1999-2003	
	Dollars	Percent of all \$	Dollars	Percent of all \$
Medical	\$13,353,369	37.8%	\$27,160,321	49.7%
Benefit Payments	\$6,148,830	17.4%	\$10,331,047	18.9%
Settlements	\$14,158,245	40.0%	\$15,350,769	28.1%
Employer Legal	\$316,279	0.9%	\$499,903	0.9%
Other	\$1,390,464	3.9%	\$1,266,281	2.3%

The cost of the 100 Most Costly Claims was assessed within the first study. A review of costs in the second period was done using those same categories. The cost of these claims is dramatically different within the medical and settlement areas. Although in the first time period the lump sum settlements accounted for forty percent (40.0%) of all of the costs, now those settlements represent merely twenty-eight percent (28.1%) of the costs; a shift of nearly twelve percent. This may be related to how long a claim remains “open” over time within the second study. That twelve percent shift is clearly in the medical cost area. Costs have increased in the past five years mirroring the increasing medical costs for everyone.

In trying to compare the dollars spent in each category, it is important to acknowledge the impact that inflation has on all costs. All of the above categories were adjusted for inflation. Using the comparable inflation rate for wages (CPI-W) of 12.6%, the 1999-2003 costs were inflation adjusted to the 1994-1998 costs, then a comparison of the percentage change was made for each category. While adjusting for inflation caused a decrease in the “Settlement” and “Other” category, the comparison of real dollars between the time periods indicates more than 80% increase in “Medical” and increases in both the “Benefit Payments” and “Employer Legal” of in excess of forty percent.

100 Most Costly	1994-1998		1999-2003	
	Real Dollars	Real Dollars	Adjusted Dollars	% Inc/%Dec
Medical	\$13,353,369	\$27,160,321	\$24,121,067	+80.6%
Benefit Payments	\$6,148,830	\$10,331,047	\$9,174,997	+49.2%
Settlements	\$14,158,245	\$15,350,769	\$13,633,010	-3.7%
Employer Legal	\$316,279	\$499,903	\$443,964	+40.4%
Other	\$1,390,464	\$1,266,281	\$1,124,583	-19.1%

In the second study the claims were measured to find the average length of time from injury to settlement. This measurement was unavailable in the previous study. It will be important to look at this measure in future studies to see if the time lengthens or shortens. It is understandable that the longer a claim remains “open” the more the costs will increase simply due to the passage of time. The size of the settlements decreases proportionately as the claim

remains open, because several years of expected medical costs and benefit payments are no longer considered to be needed in the final settlement offer.

Questions for further research:

- What is driving the cost of a workers' compensation claim over time?
- How long does it take for a workers' compensation claim with serious injuries to close?
- Are rising medical costs causing catastrophic claims to remain open longer?

G. Types and Causes of Injuries

The most frequent injury category reported in the hundred most costly claims continue to be back and extremity injuries. Back and neck injuries can be degenerative or traumatic depending on causation. The extremity injuries include: carpal tunnel issues; amputations; as well as traumatic injuries to any extremity or shoulder. Multi-trauma injuries appear to play a larger part in the current study than in the earlier study.

100 Most Costly	1994-1998		1999-2003	
	Number	Number	Number	Number
Back/Neck	62	31		
Extremities/Shoulder	28	33		
Multi Trauma	6	25		
Head	4	6		
Other (Burns/Stress/Poisoning)	0	5		

Another way of categorizing injuries is to look at the cause of the injury. This was not done for the earlier time period, but was reviewed in the current study. The causes of injuries were varied. The most common cause was a lift or strain (26). This is consistent with the number of back injuries noted above. The second most common cause was a fall (18), followed closely by a slip (13). A fall is from a height or from one level to another which included a fall from a roof, or a fall from a tractor trailer. A slip is when either someone slips on something resulting in an awkward physical adjustment, or an actual fall to the ground or floor. Other causes included an object hitting the employee (10). Examples are a tree or pipe falling on a worker, a load shifting and falling on the worker or a riding lawnmower falling on the worker after rolling over. There were eleven motor vehicle accidents involving employees including three where the employee was a pedestrian (flagger, turnpike toll taker and truck driver unseen by another driver). There were nine repetitive injury claims in the sample. Six injuries were attributed to machinery. Seven other injuries either had no information in the file indicating causation (3) or did not fall into any of the above categories including causes such as chemical exposure (1), stress (1) or a gas explosion (2).

Questions for further research:

- Can the type of injury or the mechanics of injury predict the cost of a claim?

H. Lump vs. Structured Settlements

While reviewing the cases of the first period of lump sum settlements the reviewers found less than a handful of settlements that were structured. Most of the settlements were lump sums with the dollar amount coming at the time of the settlement. The same was not found with the claims that had a settlement in the latter time period. Although, as noted above, ten fewer claims were closed in the latter time period (sixty six versus seventy-six), many more were closed with the structured form of settlement. Four of the claims were closed via subrogation (payment from another source i.e., car insurance.) Thirty-nine were closed via a lump sum payment at the time of the closing and twenty-three were closed via a structured settlement. The prevalence of these structured settlements poses some questions as to what has changed in the intervening five year period. Additionally, the average lump sum settlement in the first study was \$194,497. In the second study, the average lump sum settlement was \$239,856. This represents a 23.3% increase from the first study. This is not that far from the combined inflationary factor for that five year period and is markedly different from the sixty seven and forty-nine percent increases in medical costs and benefit payments seen when compared to adjusted dollars. Clearly, lump sum settlements are not driving the costs of workers compensation benefits.

Questions for further research:

What is at work that is resulting in fewer lump sum settlements and more structured large settlements?

What role are the changes in Medicare playing in structured settlements?

I. Injury Frequency by Occupation

100 Most Costly	1994-1998	1999-2003
	Number*	Number
Operators/Fabricators & Laborers	48 (52%)	42
Production/Craft & Repairs	18 (20%)	23
Farming Forestry & Fishing	5 (5%)	5
Service Occupations	8 (9%)	4
Technical Sales & Admin Support	8 (9%)	15
Managerial & Professional	5 (5%)	11

* eight claims were uncoded

The distribution of the occupations is similar with the exception of technical and managerial occupations. The second study found more claims within that classification of occupation than the earlier study. It is important to note that there were eight claims that were not coded in the earlier study so while the number in the second column is indeed the percentage (since n=100), the percentage is noted in the first column because of the missing data.

V. Conclusions and Questions for Further Study

A review of the most costly claims in Maine is an interesting collection of data that offers more questions to be asked than answers. The two studies do indicate that some things have changed in the intervening five years and some things have remained remarkably the same. The cost dynamics that appear to have changed are that costs are increasing more than can be explained by any cost of living factor. Medical costs are increasing as are indemnity benefits. The hundred most costly claims are remaining open for a longer period in the second study than in the first study. Why this is happening is not identified, but remains an important question for further study. The demographics of the two populations of the hundred most costly claims are remarkably similar for both of the samples. No significant change in age or gender was observable. There was a slight shift in the average cost of a claim when examined by age. The average PI rating for the later period declined from the first study period.

The two studies, one in 2002 and this one, provide some baseline data for an examination of claims in the future. A listing of some of those questions ensues.

1. Why do men represent a far higher percentage of the most costly claims than within the total population of injured workers?
2. In the hundred most costly claims, why do women's average length of service differ so greatly from the average length of service of all injured women?
3. Why is there a difference between male and female length of service?
4. Why do female workers' compensation claims cost less than male claims?
5. What impact is average weekly wage having on the difference between male and female cost data?
6. Do injured workers reflect the age of the entire workforce? If there are differences, where are they?
7. How will the aging workforce impact costs to the workers' compensation system?
8. Why are nearly a third of the injured workers between the ages of 35 and 44? Is this a comparable percentage of the total workforce?
9. Why does the cost by age differ from the frequency by age?
10. What information will help to explain the differences noted in the difference between frequency and cost by age?
11. Are increasing medical costs having an influence on how long a claim remains open?
12. What impact do social security and disability offsets have on indemnity payments?
13. Why does one in every three lost time injuries occur within the first year of service?
14. What implication does this have for safety officers and human relations departments?
15. Why do four out of every ten dollars spent on the workers' compensation system occur with employees who have been on the job for less than two years?
16. Do these figures reflect the transient nature of the workforce in Maine?
17. Why do claims cost increase for employees who have worked 5 years, but less than 10 years for the company?
18. Are lump sum settlements providing enough resources for future medical costs?
19. Are lump sum settlements growing or shrinking? Why?
20. Why is the disparity of the cost of a claim between genders increasing so rapidly over time?

21. What is driving the overall increase in catastrophic claim costs?
22. Why is there a shift in the average cost of a claim to older workers?
23. Why are employees aged 45-54 the most expensive claims?
24. Why are catastrophic claims staying open longer now?
25. Is this trend a general trend that can be seen across the entire population of lost time injuries?
26. What is driving the cost of a workers' compensation claim over time?
27. How long does it take for a workers' compensation claim with serious injuries to close?
28. Are rising medical costs causing catastrophic claims to remain open longer?
29. Can the type of injury or the mechanics of injury predict the cost of a claim?
30. What is at work that is resulting in fewer lump sum settlements and more structured large settlements?
31. What role are the changes in Medicare playing in structured settlements?

Appendix A

Researchers' Notes and Observations

Researchers' Notes and Observations

MOST COSTLY FIVE

The top five most costly claims were all in excess of a million dollars. Only one of them had settled at the time of the study (a 1999 claim). Three of them involved motor vehicles, two of the injured workers were pedestrians and the other two were falls from roofs.

Payments by insurance companies included new homes, the retrofitting of a home to make it handicap accessible, new vehicles and vehicle lifts, fertility treatments and embryonic storage. Two of the five never had a Notice of Controversy filed on the claim. None were controverted initially.

NEXT SEVEN

The next seven claims all exceeded half a million, but have not yet broken the million dollar mark at the time of the study. Only two of these claims had settled at the time of the study (one 1999 claim and one 2000 claim). Two were motor vehicle accidents (one as a pedestrian), one was a degloving, three were falls from a roof or higher, and one was a tree falling on a worker.

The payments again ran a wide range from new homes to annuity payments for life to make up for the differentiation from pre-injury work to the work the employee currently had at the time of the study. Four of the seven never had a Notice of Controversy filed on the claim. None of the seven were initially controverted.

In fact, of the most costly one hundred claims only five were initially controverted. Two of them were carpal tunnel injuries, one was an aggravation to a previous injury, one refused a light duty assignment and one was a stress injury.

FATALITIES

Only two of the most costly were fatalities. Both deaths occurred subsequent to significant medical intervention and procedures. Both individuals were age sixty or older at the time of the injury.

EMPLOYERS

One event caused two of the most expensive injuries in the second study. This was an explosion and involved recovery from a third party. Ignoring this one event, in both studies there were employers with multiple employees in the most costly one hundred claims. A review of all ten years of injuries indicated that twelve employers represented forty of the two hundred most costly injuries.

4 employers with more than 1,000 employees represented	22 of the 200 injuries.
4 employers with more than 500 employees represented	10 of the 200 injuries
2 employers with more than 150 employees represented	4 of the 200 injuries
1 employer with more than 50 employees represented	2 of the 200 injuries
<u>1 employer with less than 50 employees represented</u>	<u>2 of the 200 injuries</u>
12 employers represented	40 of the 200 injuries

INSURERS

Employers in Maine are either self-insured themselves or through a group self-insured otherwise, they obtain a commercial workers' compensation insurance. For these two hundred injuries, most were insured by a commercial workers' compensation policy. The breakdown is as follows:

First period of study:		Second period of study:	
39	Self-insured	22	Self-insured
61	Commercially insured	78	Commercially insured

Appendix B

Selected Slides from
NCCI 2007 State Advisory Forums
Presentation
Maine Workers' Compensation State Advisory Forum
October 23, 2007

Presented by: Laura Backus Hall
Martin Wolf and
Jim Davis

Available upon request.

Appendix C

1994-1998 Maine Reported Lost Time Claims 100 Most Costly

Available upon request

Appendix D

1999-2003 Maine Reported Lost Time Claims 100 Most Costly

Available upon request